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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,724	04/27/2005	Takashi Sudo	271008US90PCT	8943

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

FLANIGAN, ALLEN J

ART UNIT	PAPER NUMBER
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3744

NOTIFICATION DATE	DELIVERY MODE
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07/02/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/532,724	Applicant(s) SUDO, TAKASHI	
	Examiner Allen J. Flanigan	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 8-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 17, and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/27/05</u> . | 6) <input type="checkbox"/> Other: _____ |

Claims 8-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/21/2008.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakaguro.

Nakaguro teach an aluminum alloy heat exchanger construction (disclosed as particularly suitable for condenser use) with tubes made of AA 1070, coated with zinc, and fins made of an AA 3003 core with braze clad alloy AA 4045 on them. Nakaguro also point out the desirability of having the tube material have higher potential (be more noble or cathodic) than the fin material, and indicate one way of doing this as using an AA 1070 alloy containing excess copper, from 0.35-0.65%. Adding additional zinc to the outer surface clad 222, 223 of the fins further ensures the fins have lower potential (are more anodic) than the tubes. This combination of features is believed to anticipate claim 1, in that a fillet will form between the fin and the tubes clad with zinc upon furnace brazing of the assembly when the AA 4045

cladding on the fins melts, such that the relative potential of the heat exchanger structure would be as follows:

Most anodic: Zinc coating 211 on tubes

Next: fillet formed by melting of AA 4045 clad at the tube/fin joint (particularly when enhanced with additional zinc content)

Next: Fin core AA 3003 (the fin potential could also be considered to be equivalent to that of the cladding material 222, 223 if potential at the fin surface is considered)

Most Noble (highest potential): tube core of AA 1070 with added copper content.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaguro in view of Tajima et al.

Although the illustrative embodiment of Nakaguro suggests the use of pure zinc layer (or galvanization) as a sacrificial layer 211 to protect the heat exchanger tubes, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ virtually any known metal alloy as a sacrificial coating provided it had sufficient anodic potential to preferentially corrode to protect the heat exchanger components (tubes, fins,

braze fillet). Tajima et al. disclose a sacrificial corrosion layer for aluminum sheet comprising an aluminum alloy containing zinc, copper, and manganese. The selection of appropriate amounts of the different components of the alloy to impart the desired anodic potential relative to the fin and tube alloys (and other desired characteristics of the cladding) would have been well within the level of ordinary skill in the art. Likewise, the selection of other alloys besides the alloys mentioned in the illustrative embodiments of Nakaguro for the fins, tubes, and braze clad applied to the fins would have been obvious to one of ordinary skill in the art.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaguro in view of Usui et al.

Regarding claim 18, although the suggested use of Nakaguro's exchanger is as a condenser in a refrigerant circuit, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the exchanger as an evaporator, since both types of exchangers are subject to galvanic corrosion (note lines 25-29 of column 3 of Usui et al.).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The remaining references concern aluminum alloys or heat exchangers made of aluminum alloy with provision for corrosion protection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (571) 272-4910. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen J. Flanigan/
Primary Examiner, Art Unit 3744